

REMARKS

I. STATUS OF THE CLAIMS

The Advisory Action mailed December 13, 2004, indicates that claims 11-16 are allowed.

New claims 21-24 are added. New claims 21-22 are somewhat similar to amended claim

1. New claims 23-24 are somewhat similar to amended claim 17.

In view of the above, it is respectfully submitted that claims 1-24 are currently pending, of which claims 11-16 are allowed.

II. THE REJECTION OF CLAIMS 1-3, 8-10 AND 18-20 UNDER 35 U.S.C. §103(a), AS BEING UNPATENTABLE OVER TERAHARA IN VIEW OF SWANSON, SATOH AND PIERRE

In the present invention as recited, for example, in claim 10, the setting of the pre-emphasis is made after controlling the setting of the α parameter representing an amount of the optical wavelength chirp, in a repeating sequence, so that the performed pre-emphasis and applied optical wavelength chirp are controlled together to optimize signal to noise ratio or transmission error rate of the wavelength division multiplexed optical signal at the receiving terminal station.

Claim 10 is amended to clarify such features. Support for the amendment is found, for example, on page 16, second paragraph, through page 17, second paragraph.

On page 5 of the outstanding Office Action, the Examiner recognizes that neither Terahara, nor Swanson, nor Satoh teach or suggest an iterative optimization sequence for applying chirp control and pre-emphasis control. Instead, the Examiner relies upon Pierre for such a teaching.

Pierre discloses an iterative technique having a dynamic programming phase and a strategy phase which "by alternating between strategy phases and dynamic programming phases, better and better solutions are obtained, and these, hopefully but not necessarily, converge to the optimal solution" (section 7-10, lines 5-7 and 12-15). However, it is respectfully submitted that this disclosure in Pierre fails to teach or suggest setting the pre-emphasis after the α parameter as recited, for example, in claim 10.

Moreover, it is respectfully submitted that Pierre fails to teach or suggest that the performed pre-emphasis and applied optical wavelength chirp are **controlled together** to

optimize signal to noise ratio or transmission error rate of the wavelength division multiplexed optical signal at the receiving terminal station as recited, for example, in claim 10.

In the outstanding Advisory Action, the Examiner asserts that Terahara teaches in FIGS. 9, 10 or 13 that an amplifier 62 or an attenuator 58 can be used to control pre-emphasis. The Examiner notes that amplifier 62 or attenuator 58 is located after modulator 16 in Terahara. Since Satoh discloses a chirp parameter controlled via a modulator, the Examiner asserts that the combination of Satoh with Terahara would disclose pre-emphasis after chirp control.

It is respectfully submitted that amplifier 62 or attenuator 58 being located after modulator 16 in Terahara does not indicate that the control would be performed in the order recited, for example, in claim 10 of the present application. For example, as recited in claim 10, the setting of pre-emphasis and the setting of the parameter α are **dependent on reception information** (optical signal to noise ratio and transmission error rate) transmitted from the receiving terminal station. Therefore, for the sake of argument, assume that Terahara is combined with Satoh, and reception information (optical signal to noise ratio and transmission error rate) is transmitted to the transmitting terminal station from the receiving terminal station. In such a case, pre-emphasis could be performed before the chirp control in accordance with the transmitted reception information.

In other words, the location of the components does not dictate the order in which control processes are performed.

Moreover, it is respectfully submitted that the present invention, as recited, for example, in claim 10, specifically recites that the performed pre-emphasis and applied optical wavelength chirp are **controlled together to optimize signal to noise ratio or transmission error rate of the wavelength division multiplexed optical signal at the receiving terminal station**. Terahara relates to pre-emphasis by itself. Satoh relates to chirp control by itself. Neither reference discloses or suggests how pre-emphasis and chirp control should be controlled together. More specifically, neither reference discloses or suggests how pre-emphasis and optical wavelength chirp would be controlled together to optimize signal to noise ratio or transmission error rate of the wavelength division multiplexed optical signal at the receiving terminal station as recited, for example, in claim 10.

Therefore, it is respectfully submitted that neither Terahara nor Satoh discloses or suggests any order in which pre-emphasis should be performed with respect to chirp control in accordance with reception information from a receiving terminal station.

Please note that claim 10 is also amended to clarify that the setting of said pre-emphasis is made after controlling the setting of the α parameter, **in a repeating sequence**. See, for example, page 17, lines 8-10, of the specification. In view of the above comments, it is respectfully submitted that this claim amendment further distinguishes over the combination of references.

The above comments are specifically directed to claim 10. However, it is respectfully submitted that the comments would be helpful in understanding various differences of various other rejected claims over the combination of references.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. THE REJECTION OF CLAIM 4 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER TERAHARA, SWANSON, SATOH AND PIERRE AND FURTHER IN VIEW OF TAGA

It is respectfully submitted that the comments in Section II, above, for distinguishing over the cited references, would be helpful here in understanding various differences of the rejected claim over the cited references.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. THE REJECTION OF CLAIM 5 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER TERAHARA, SWANSON, SATOH AND PIERRE AND FURTHER IN VIEW OF KHALEGHI

It is respectfully submitted that the comments in Section II, above, for distinguishing over the cited references, would be helpful here in understanding various differences of the rejected claim over the cited references.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. THE REJECTION OF CLAIM 6 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER TERAHARA, SWANSON, SATOH AND PIERRE AND FURTHER IN VIEW OF EGGLETON

It is respectfully submitted that the comments in Section II, above, for distinguishing over the cited references, would be helpful here in understanding various differences of the rejected claim over the cited references.

In view of the above, it is respectfully submitted that the rejection is overcome.

VI. THE REJECTION OF CLAIM 7 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER TERAHARA, SWANSON, SATOH AND PIERRE AND FURTHER IN VIEW OF EGGLETON AND BULOW.

It is respectfully submitted that the comments in Section II, above, for distinguishing over the cited references, would be helpful here in understanding various differences of the rejected claim over the cited references.

In view of the above, it is respectfully submitted that the rejection is overcome.

VII. THE REJECTION OF CLAIM 17 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER TERAHARA IN VIEW OF SWANSON ET AL., SATOH, STEPHENS AND PIERRE

Claim 17 recites a setting of the pre-emphasis in the pre-emphasis performing means is after controlling a setting of an α parameter in the chirp applying means.

Moreover, claim 17 is amended herein to recite that the control means of the transmitting terminal station and the Raman amplification control means of the optical repeater station control the setting of the α parameter and the setting of pre-emphasis in the pre-emphasis performing means, after controlling the supply condition of Raman excitation light in the Raman amplifier so that the performed pre-emphasis, the applied chirp and the Raman amplification are controlled together, in a repeating sequence, to optimize signal to noise ratio or transmission error rate of the wavelength division multiplexed signal light at said receiving terminal station.

It is respectfully submitted that none of the cited references disclose or suggest (a) a setting of the pre-emphasis after controlling a setting of an α parameter, and (b) the setting of the α parameter and the setting of pre-emphasis after controlling the supply condition of Raman

excitation light in the Raman amplifier, in a repeating sequence, as recited, for example, in claim 17.

Moreover, none of the references disclose or suggest any order of the setting of the a parameter, the setting of pre-emphasis and/or the control of Raman amplification with respect to each other, or indicate how any ordering of control processes can be used to optimize signal to noise ratio or transmission error rate of a wavelength division multiplexed signal light at a receiving terminal station.

Further, in accordance with the comments in Section II, above, it is respectfully submitted that location of components does not dictate the order in which control processes are performed.

In view of the above, it is respectfully submitted that the rejection is overcome.

VIII. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

If there are any additional fees associated with filing of this response, please charge such fees to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date:

January 11, 2005

By:


Paul I. Kravetz
Registration No. 35,230

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501